Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

January 18, 2008

Dear Reader:

Enclosed for your review and comment is the Montana Department of Environmental Quality (DEQ) Draft Conclusions and Determination of Substantive Compliance with the Montana Major Facility Siting Act for Western Area Power Administration's (Western) Proposed Rebuild of the Havre to Rainbow 161-kV Transmission Line. Western is proposing to rebuild a 103-mile segment of 115-kV transmission line from the Havre Substation west of Havre, Montana, to the Rainbow Substation northeast of Great Falls, Montana. The proposed project would improve transmission reliability by replacing all existing wooden H-frame structures, associated guy wires, insulators and conductors with components that meet 230-kV design standards. The rebuilt line would be initially operated at 161-kV, and upgraded to 230-kV when required. Western plans to widen the existing right-of-way (ROW) and plans to rebuild the line along the existing alignment except for eight proposed reroutes. The eight new reroutes would cross approximately 30 miles and would be constructed within new ROW. The existing line adjacent to these eight reroutes, crossing approximately 30 miles, would be removed; the associated ROW would be abandoned and restored to match surrounding conditions as much as possible.

DEQ has evaluated the proposed project to determine substantive compliance with the Montana Major Facility Siting Act (MFSA) (75-20-101, et seq., MCA). DEQ adopts the Western Environmental Assessment for the Havre-Rainbow Transmission Line Rebuild with several changes. Based on information presented in the Western Environmental Assessment, DEQ has made a preliminary determination that the proposed project would comply with the substantive standards of MFSA if Western rebuilds, maintains, and operates the transmission line in compliance with the conclusions and findings stated in the enclosed document.

Public comments concerning DEQ's Draft Conclusions and Determination will be accepted for 30 days, until February 19, 2008. Written comments may be sent to the Montana Department of Environmental Quality, PO Box 200901, Helena, MT 59620-0901, Attn: Tom Ring or email tring@mt.gov.

If you have further questions regarding DEQ's preliminary determination contact Tom Ring at (406) 444-6785.

Warren D. McCullough

Warren D. McCullough, Bureau Chief
Environmental Management Bureau
Department of Environmental Quality

THE MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY

****

In the Matter of Determination of Substantive Compliance with the Montana Major Facility Siting Act for Western Area Power Administration's Proposed Rebuild of the Havre to Rainbow 161-kV Transmission Line

DRAFT CONCLUSIONS AND DETERMINATION

****

DEPARTMENT CONCLUSIONS

1. The need for replacement of the Western Area Power Administration (Western) Havre-Rainbow 161-kV transmission line is based on reliability of service. For facilities for which reliability of service is the stated basis for need, the Department must first find that the reliability of the transmission line will be violated within two years of the date the proposed facility is to be placed in service if the proposed facility is not built or some other solution is not implemented pursuant to ARM 17.20.1606(1)(g)(i). The existing transmission line was placed in service in 1934. It is at the end of, or has exceeded, its useful life. Many of its transmission structure components, including poles and cross-arms, will require replacement over the next several years. Replacement hardware is difficult to obtain because the existing conductor is made of copper while most conductor presently manufactured is made of steel and aluminum. In addition, the existing transmission line does not have the protection of an overhead ground wire, and unplanned outages due to lightning strikes will become increasingly frequent because of its deteriorating condition. The average forced outage rate of 1.3 outages per 100 miles per year for the existing transmission line already exceeds the average forced outage rate for 230-kV lines in the Upper Great Plains Region of 1.24 outages per 100 miles of line per year. It is anticipated that the upgrade to the Havre-Rainbow transmission line will not be completed for ten years. Given the state of the current transmission line which has been in service for over seventy years, the Department finds that Western's reliability criteria will be violated within two years of the date the proposed upgrade is to be completed if the proposed upgrade does not take place or some other solution is not implemented.

For facilities for which reliability of service is the stated basis for need, the Department must also find that the value of savings from reduced outages plus any value for general reliability of service, over the life of the facility, is reasonably likely to exceed the cost of the

proposed facility pursuant to ARM 17.20.1606(1)(g)(ii). The cost of the upgrade to the Havre-Rainbow transmission line is estimated at $27.1 million, or $263,107 per mile. The cost would be incrementally distributed over a 10-year period. Western believes that the incremental cost to upgrade the existing transmission line would be cost-effective by preventing system losses that now occur.

While the value of savings from reduced outages has not been quantified, the Department believes that the savings would be substantial, given the age and state of the existing transmission line. In addition, the existing structures would be replaced with structures that have been improved through advanced technology and manufacturing processes, further reducing outage rates. In addition to savings from reduced outages, significant value for general reliability of service will be realized by upgrading the existing transmission line. Upgrading the existing transmission line will increase its capacity from 161-kV to 230-kV. System studies have indicated that outages on Western's 230-kV transmission lines in eastern Montana overload the existing 161-kV Havre-Rainbow transmission line by 115 to 120 percent of normal. Western has been required to restrict Fort Peck Dam generation during outage conditions because of limited line capacity. By increasing the capacity of the existing transmission line, Western would be better able to transmit and distribute hydroelectric power being generated, along with power from new sources. With increased capacity, Western would have greater transfer capability. For instance, the rebuild would allow maintenance of generation levels at Fort Peck Dam should an outage occur elsewhere in the eastern Montana transmission line system, minimizing or eliminating service interruption. Over the life of the upgraded transmission line, the Department believes that the savings from reduced outages plus the value for general reliability of service that will be realized is reasonably likely to exceed the proposed upgraded transmission line's cost of $27.1 million,

2. The nature of the probable environmental impact that would result from the proposed rebuild of the Havre-Rainbow 161-kV transmission line has been identified in the Final Environmental Assessment, Havre-Rainbow Transmission Line Rebuild Project, June 2007 (EA). The EA indicates that construction and operation of the rebuilt transmission line would not exceed state and federal air quality standards (EA, p. 50), and would not result in a significant impact to vegetation (EA, p. 59), fish (EA, p. 63), wildlife (EA, p. 73), and species listed as endangered, threatened or proposed for listing under the Endangered Species Act (EA,

pp. 76-77). Additionally, the proposed rebuild would not convert prime or unique farmland to non-agricultural uses (EA, p. 79), would not disrupt or displace recreational opportunities (EA, p. 95), and would protect all sites of archaeological, Tribal or historical value (EA, p. 102). Surface water flow characteristics of flood plains would not be altered (EA, p. 107), there would be no negative impact to wetlands (EA, p. 110), and surface water and groundwater would not be degraded (EA, pp. 115-116). The proposed rebuild of the transmission line would not significantly increase intrusion on unique viewsheds or views from sites listed or potentially eligible for listing on the National Register of Historic Places or contribute to landscape changes that would affect scenic views in the vicinity of the transmission line (EA, p. 129).

The analysis set forth in the EA is amended in three areas as follows:

A. Pages 69, 74 and 75. The bald eagle (*Haliaeetus leucoephalus*) is described as being listed as a threatened species under the Endangered Species Act. In early 2007 the US Fish and Wildlife Service formally delisted the bald eagle. This species is now protected under the Bald and Golden Eagle Protection Act and under the Migratory Bird Treaty Act. In May 2007 USFWS published guidelines for protection of bald eagles under these acts.

B. Page 78, Section 3.3.3.1.1. Figure 18 indicates that much of the area between Loma and Fort Benton has high quality farmland. This is based on mapping at a scale of 1:250,000. Map resolution at this scale is not highly refined. Much of the area traversed by both the existing and proposed lines consists of fine-grained soils on steep slopes which are not suitable for farming. Areas suitable for farming are located on the high more level benches and along the lower valley floor of the Marias and Teton rivers. The proposed line would be located on relatively level areas near the edges of these benches.

C. Tables, Table 10. The length of the existing line on reroute 3 should be 3.7 miles rather than 5.4 miles.

D. Page 86, under the heading Long-term Impacts. Reroute 4 does not avoid a business and a school. It was developed to remove two turning structures from wheat fields.

3. Western's proposed upgrade of the Havre-Rainbow 161-kV transmission line minimizes adverse environmental impacts. Reasonable alternatives to Western's proposal were considered in the EA (EA, pp. 40-44). In large part, the alternatives were dismissed because they failed to reduce impacts to the extent achieved by Western's proposal. Section 75-20-301(1)(c), MCA.

Western has proposed to reroute the transmission line in eight areas to reduce costs and minimize impacts as follows:

A. Reroute 1 straightens the line and removes several turning structures. As proposed, this reroute would likely have disrupted a planned center pivot irrigation system on the Fort Assiniboine Agricultural Experiment Station, affecting about 30 acres of land. Western has committed to avoid the parcel by installing additional angle structures, modifying the irrigation system design, or compensating for lands that cannot be irrigated.

B. Reroute 2 addresses Tribal concerns about the location of the existing line crossing the Box Elder High School athletic field. The reroute would locate the line in a cultivated field to the east where a center pivot irrigation system has been constructed after an easement for the reroute was obtained. The pivot now rotates through a 270 degree arc. The sweep of the center pivot would be reduced by about 15 degrees after the line is moved.

C. Reroute 3 was developed to avoid the town of Big Sandy and to provide more clearance for an air strip located south of Big Sandy.

D. Reroute 4 was developed to shorten the transmission line by 0.3 miles, straighten the transmission line, and eliminate two structures in cultivated fields.

E. Reroutes 5 and 7 straighten the transmission line by eliminating one turning structure in each proposed reroute. Turning structures can be supported by guy wires and tend to take more land out of production than non-turning structures.

F. Reroute 6 would shift the line away from the town of Loma where the line now passes through town, would avoid the confluence of the Marias and Teton rivers which are important for recreation, avoid two crossings of Highway 87 improving safety, and eliminate structures in fields irrigated with three side roll irrigation systems and a center pivot irrigation system.

G. Reroute 8 would move the line away from an expanding gravel pit and a shed.

Attachment 1 *Land Use Totals: Proposed Reroutes vs. Existing Route* summarizes the change in the mileages of land uses affected by the reroutes.

Except for an area between the Great Falls 230-kV Switchyard and Rainbow Substation and an area near the town of Laredo, the remainder of the line would stay in its current location but the span length would increase, decreasing the number of structures. Although the 230-kV H-frame structures would be approximately 5 feet wider and 9 feet taller than existing 161-kV structures, there would be a net reduction in impacts to farming activities.

Near Great Falls, the current transmission line connects to the Rainbow Substation. Western is seeking approval of an option to reroute the transmission line so that it connects to the Great Falls 230-kV Switchyard which is located northwest of the Rainbow Substation. If Western were to relocate the transmission line under this option, 230-kV transformers would have to be installed at the Great Falls 230-kV Switchyard.

The current transmission line and the optional relocation of the transmission line to the Great Falls 230-kV Switchyard crosses a tract of land that is subject to a conservation easement granted to the Conservation Fund by the Montana Power Company in 1999. The easement was subsequently assigned to Montana Fish, Wildlife and Parks. Language in the conservation easement indicates that the grantor, Montana Power Company, "wishes to protect and conserve the Land so as to protect and enhance the open space resources where consistent with its hydropower production and power transmission activities," and the "Grantor's wish to implement a policy to consolidate power lines and substations in certain areas to the extent practicable to reduce visual impacts when siting, constructing, replacing, and upgrading facilities" *Lewis and Clark Heritage Greenway Deed of Conservation Easement July 22, 1999*

As indicated in the EA, a significant impact could occur if the project resulted in the development of the conservation easement land that conflicted with easement stipulations. The option sought by Western would relocate the transmission line along the northern boundary of the tract subject to the easement. Attachment 2 shows the location of the optional relocation of the transmission line to connect to the Great Falls 230-kV Switchyard. Land use in the area is a mix of range, pasture, and non-irrigated cropland. No residences are present. Another transmission line connecting to the switchyard to be built by MATL is proposed to be located along a portion of the northern boundary. Transmission lines owned by PPL may also be consolidated in this location as well. The Montana Fish, Wildlife and Parks concurs with relocating the transmission line along the northern easement boundary.

Western also proposes a small adjustment of the transmission line near Laredo. Near Laredo, five residences are located just outside the existing right-of-way. Because of the wider right-of-way associated with the 230-kV line, the residences would be located within the outer 7.5 to 17.5 feet of the right-of-way if the transmission line were to be rebuilt and upgraded in its current location. While the electric field strength at the edge of the new right-of-way is predicted to be 0.944 kV per meter one meter above the ground, the electric strength at several of the five

residences may exceed Montana's electric field strength standard of 1 kV per meter. Since publication of the EA, Western has indicated that the location and/or design of the transmission line would be adjusted so that that these residences would be located outside of the right-of-way and that Montana's electric field strength standard of 1 kV per meter would be met at the edge of the right-of-way (Shulund 2007).

The proposed line and alternatives would not cross any of the following areas: wilderness areas, national primitive areas, national wildlife refuges, state wildlife management areas and wildlife habitat protection areas, national parks and monuments, state parks, national recreation areas, corridors of rivers in the national wild and scenic rivers system and rivers eligible for inclusion in the system, roadless areas greater than 5,000 acres in size managed by federal or state agencies to retain their roadless character, and specially managed buffer areas surrounding national wilderness areas and national primitive areas. The line would cross isolated areas with rugged topography on slopes greater than 30 percent. Vegetation may be destroyed during the construction process and soil would be exposed to erosion on these steep slopes. Western has proposed a plan to control erosion during project construction and would be required to implement a storm water pollution prevention plan under Montana water quality statutes. DEQ would monitor the project to ensure that areas disturbed during construction are reclaimed and revegetated.

The project would meet standards for noise and electric field strength in residential and subdivided areas unless affected landowners waive these requirements. The project would be required to meet minimum standards set forth in the National Electric Safety Code and Federal Aviation Administration requirements for marking the line.

Since publication of the EA, Western has indicated that a possible line adjustment was considered at the Teton River crossing (Attachment 3). A new location east of the proposed line location was studied in an attempt to address landowner concerns related to potential property development for recreational residences. Compared to Western's proposed location, the new location would cross an additional 2.56 miles of farmland (now enrolled in the CRP program), increasing potential impacts from having to farm around structures if CRP land is converted to farmland. The new location would also be located within 1/4 mile of two residences, increasing visual impact to those residences. Finally, the new location would be approximately 0.7 mile longer than the proposed location, increasing the line's construction cost. As such, the new

location fails to reduce impacts to the extent achieved by Western's initial proposal. Following a cultural resources survey, the Department would allow the proposed line to be located within an area at the Teton River crossing depicted on Attachment 3 to reduce impacts to potential recreational development. If significant cultural resources are discovered, mitigating measures such as adjustment of the centerline and pole locations shall be made to avoid the impact. If cultural resource impacts are unavoidable, Western shall follow the direction of the State Historic Preservation Officer.

4. Western's proposed upgrade of the Havre-Rainbow 161-kV transmission line does not locate any of the transmission line underground because the cost of underground construction can exceed the cost of overhead construction by a large factor and the duration of outages for underground lines typically exceeds that for overhead line. Section 75-20-301(1)(d)(i), MCA. The proposed system is consistent with regional plans for expansion of the Western transmission system serving Montana. Line upgrade to 230-kV will provide flexibility for future system needs when transformers within the substations are upgraded to accommodate operation at 230 kilovolts. Section 75-20-301(1)(d)(ii), MCA. Western's rebuild of its Havre-Rainbow 161-kV transmission line will serve the interest of utility system economy and reliability. Information evaluated by the Department indicates that the value of the savings from reduced outages and reduced fires plus the value for increased reliability of service is reasonably likely to exceed to cost of the proposed project. Section 75-20-301(1)(d)(iii), MCA.

5. Western's proposed upgrade of the Havre-Rainbow 161-kV transmission line, including the location of the rerouted portions of the transmission line as discussed above, conforms to applicable state and local laws and regulations. Section 75-20-301(1)(e), MCA.

6. The need to rebuild the transmission line is discussed in Paragraph (1) and the nature of the probable environmental impacts is discussed in Paragraph (2). Rebuilding the transmission would result in more reliable service due to reduced line outages, greater capacity for future generation, reduced fires, reduced numbers of structures in farm land, reduced interference with sporting functions at Box Elder Athletic Field, reduced interference with irrigation near Loma, reduced number of highway crossings increasing traveler safety, reduced interference with future operations at an expanding gravel pit, and a slight short-term increase in the goods and services used by Western's crews during construction.

In terms of costs, rebuilding the transmission line would result in temporary land disturbance during construction increasing the potential for soil erosion and compaction, potential spread of weeds, loss of the potential to increase irrigation at the Montana Northern Agricultural Research Center, continued interference with farming practices, continued potential for avian losses from collision with the line and new overhead ground wires, and potential disturbance of cultural resources. Mitigating measures are identified to reduce or compensate for these impacts. In addition, there would be increased visual impacts from larger structures, though the line would be relocated outside of Loma and avoid the athletic field at Box Elder. Electric and magnetic fields strengths will increase as a result of the increased capacity of the line but field strengths near residences should be below the State electric field strength standard. There would be short-term increases in local expenditures and owners of Class III agricultural lands crossed by the line may receive tax benefits. The rebuilt line would comply with state electric field strength standards and National Electric Safety Code Standards.

The proposed rebuild of the Havre-Rainbow Transmission Line Rebuild Project replaces a transmission line that has reached or exceeded the end of its useful life and, therefore, enhances reliability of electrical service for customers served by the transmission line. DEQ concludes that the proposed project serves public interest, convenience, and necessity. Section 75-20-301(1)(f), MCA.

7. The line would be rebuilt over a 10-year period. Prior to the start of each phase of reconstruction, Western shall obtain any necessary water quality decision, opinion, order, certification or permit as required by Section 75-20-216(3), MCA. Section 75-20-301(1)(g), MCA.

8. The Department evaluated the use of public land for siting of portions of the Havre-Rainbow 161-kV transmission line and determined that the use of public land was not as economically practicable as the use of private land overall. However, two of the proposed reroutes, one near Havre and one near Loma, would make better use of public lands. Little public land is available for most of the remainder of the transmission line. The use of public land for the rest of the line was not compatible with a finding of minimum adverse environmental impact for the proposed project. Section 75-20-301(1)(h), MCA.

9. The Department shall monitor construction of the Havre-Rainbow transmission line to ensure that mitigation measures listed in the EA and the substance of environmental

specifications developed by the Department are carried out and that reclamation and revegetation efforts are successful. In addition, Western shall ensure that the standards listed in ARM 17.20.1607(2)(a)(i), (c), and (d) are met.

10. The proposed rebuild by Western of the 161-kV transmission line between Havre and Great Falls complies with the substantive standards of the Major Facility Siting Act and the Administrative Rules adopted by the Board, if Western rebuilds, maintains, and operates the transmission line in compliance with the following:

A. Prior to the start of construction, Western shall obtain any necessary water quality decision, opinion, order, certification or permit as required by Section 75-20-216(3), MCA**.**

B. Western shall rebuild the Havre-Rainbow transmission line project in Montana within a 200-foot-wide construction right-of-way and shall operate the transmission line within a 125-foot-wide right-of-way along the existing line except for eight segments proposed for relocation and the areas listed in (C) and (D) below. In addition, line location may vary from proposed locations for new structures where Montana DOT determines that adequate safety clearance along U.S. Highway 87 would not be maintained. For the eight segments proposed for relocation, the line shall be constructed at the locations depicted in Figures 3 through 11of the EA. For any structure relocations that may be necessary for adequate safety clearance along U.S. Highway 87, the structures shall be located no more than 250 feet from the existing line in a manner that minimizes impacts to existing land use, unless otherwise approved in writing by the Department.

C. Near the Teton River crossing the proposed line relocation would pass through land being marketed for recreational residential development. Following a cultural resources survey, the Department would allow the proposed line to be located within an area depicted on Attachment 4 to reduce the impacts to this development. If significant cultural resources are discovered, mitigating measures such as adjustment of the centerline and pole locations shall be made to avoid the impact. If cultural impacts are unavoidable, Western shall follow the direction of the State Historic Preservation Officer.

D. North of the Rainbow Substation, Western is considering relocating the line to connect to NorthWestern Energy's Great Falls 230-kV Switchyard. If terms of the conservation easement contain no restrictions on line location, the Department would allow the proposed line to be located along field boundaries in an area depicted on Attachment 2 after a Class III cultural resources survey is conducted. If significant cultural resources are discovered, mitigating measures such as adjustment of the centerline and pole locations shall be made to avoid the impact. If cultural impacts are unavoidable, Western shall follow the direction of the State Historic Preservation Officer.

Shulund, Dirk. 2007. Email from Dirk Shulund, Western Area Power Administration, December 3, 2007 to Tom Ring, Montana Department of Environmental Quality.

Attachment 1 *Land Use Totals: Proposed Reroutes vs. Existing Route*

Land Use Type	Reroute 1 miles	Existing Route miles
Non-Irrigated cropland/CRP	1.44	1.67
Rangeland/Pasture	1.95	1.77
Road/Right of Way	0.01	--
Total	**3.40**	**3.44**

Land Use Type	Reroute 2 miles	Existing Route miles
Non-Irrigated cropland/CRP	0.36	0.12
Rangeland/Pasture	0.04	0.09
Road/Right of Way	0.03	0.03
School Property	--	0.10
Total	**0.43**	**0.34**

Land Use Type	Reroute 3 miles	Existing Route miles
Non-Irrigated cropland/CRP	2.4	2.44
Rangeland/Pasture	1.17	0.9
Road/Right of Way	0.05	0.06
Commercial/Industrial	0.04	0.33
Total	**3.66**	**3.73**

Land Use Type	Reroute 4 miles	Existing Route miles
Non-Irrigated cropland/CRP	3.71	2.19
Rangeland/Pasture	1.55	3.35
Road/Right of Way	0.13	0.08
Total	**5.39**	**5.62**

Land Use Type	Reroute 5 miles	Existing Route miles
Non-Irrigated cropland/CRP	0.87	0.85
Rangeland/Pasture	0.17	0.21
Road/Right of Way	0.01	0.01
Total	**1.05**	**1.07**

Land Use Type	Reroute 6 miles	Existing Route miles
Non-Irrigated cropland/CRP	8.09	6.84
Rangeland/Pasture	7.90	8.05
Irrigated Cropland	--	0.34
Road/Right of Way	0.06	0.18
Water	0.02	0.07
Commercial/Industrial	--	0.47
Residential	--	0.21
Total	**16.07**	**16.16**

Land Use Type	Reroute 7 miles	Existing Route miles
Non-Irrigated cropland/CRP	0.42	0.48
Total	**0.42**	**0.48**

Land Use Type	Reroute 8 miles	Existing Route miles
Non-Irrigated cropland/CRP	0.26	0.19
Rangeland/Pasture	0.01	0.18
Road/Right of Way	0.13	0.01
Commercial/Industrial	--	0.01
Total	**0.4**	**0.39**

Source: Color Aerial Photos,USDA NAIP 2005. Field Review, 2005. NRCS, October 2007.

Attachment 2: Great Falls Switchyard Area

Legend

- Existing Western Area Power Administration 161kV transmission line
- Area for eventual relocation of the upgraded line

2

0 1,000 2,000 4,000

Feet

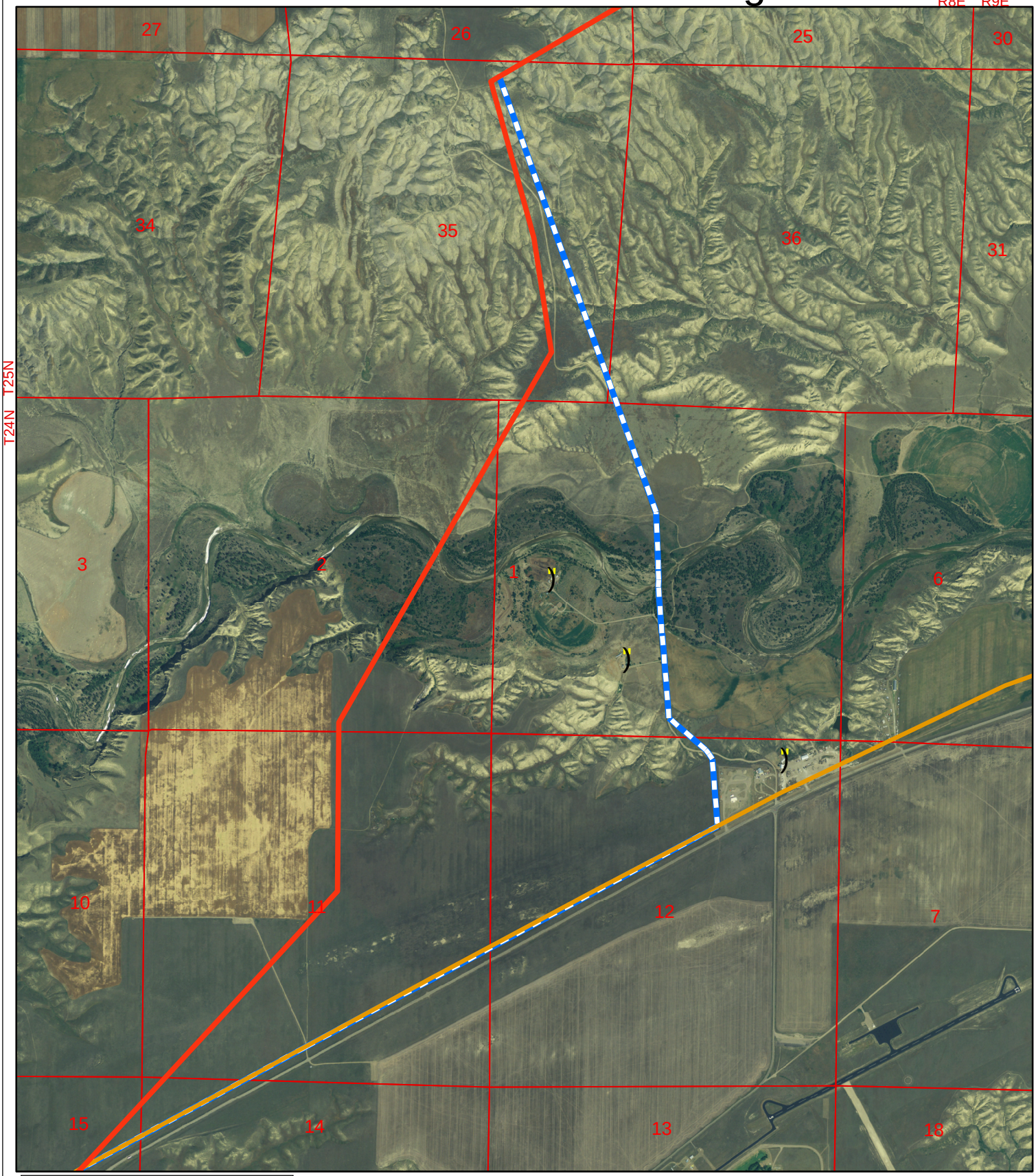
Created by C. Jones 12/13/07

Montana Department of Environmental Quality

L:\PCD\EMB\Data\MFSA\Havre-Rainbow\Field_2006\Attach2_SwitchyardArea.mxd

Source: Color Imagery, USDA 2005. Residences, Montana Cadastral Mapping Project, 2007.

Attachment 3: Teton River Crossing Area



Legend

- Existing Western Area Power Administration 161kV transmission line
- Reroute 6
- Alternative Reroute 6
- Residences

2

0 1,000 2,000 4,000

Feet

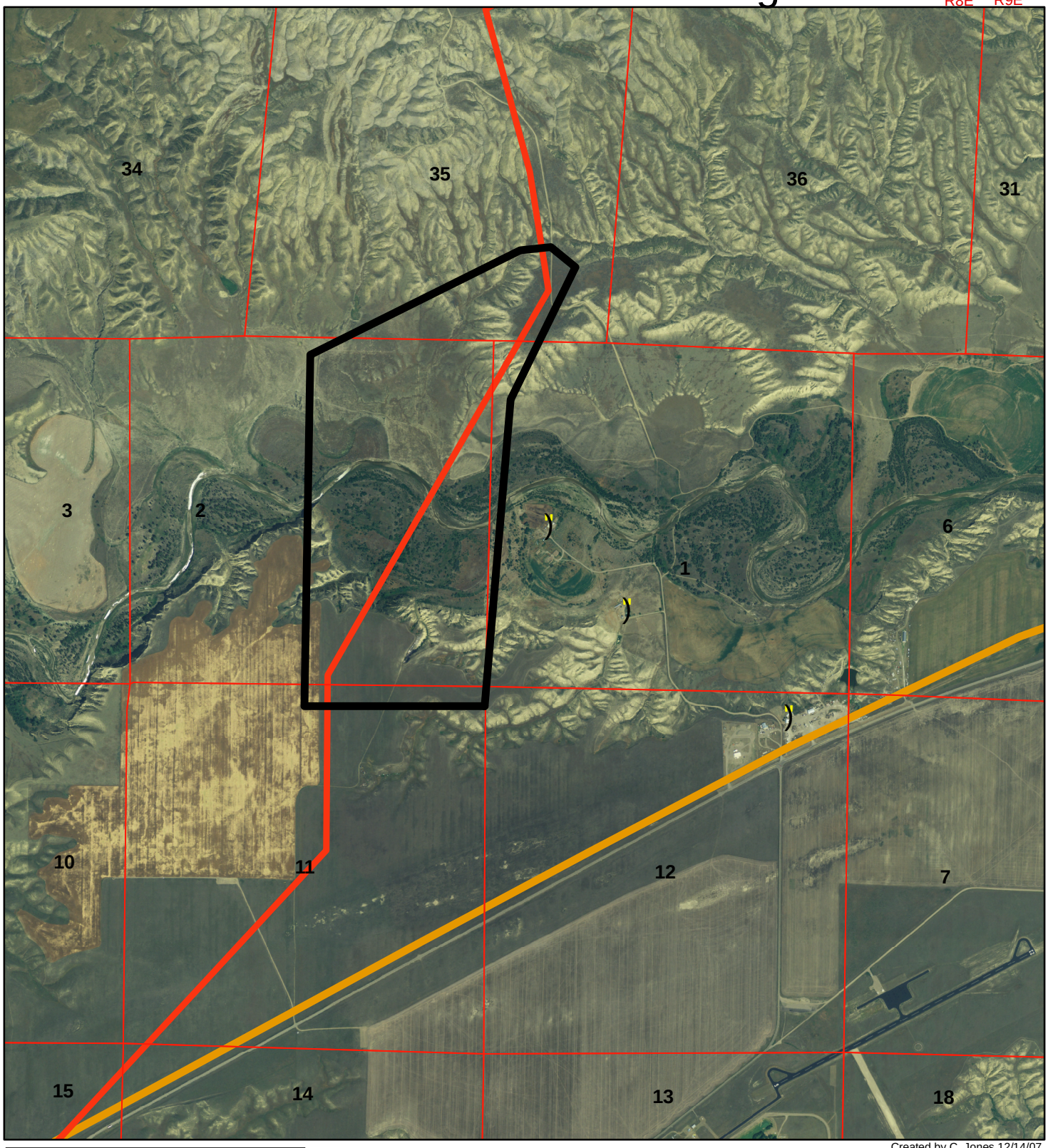
Created by C. Jones 12/14/07

Montana Department of Environmental Quality

L:\PCD\EMB\Data\MFSA\Havre-Rainbow\Field_2006\Attach3_TetonRiverXing.mxd

Source: Color Imagery, USDA 2005. Residences, Montana Cadastral Mapping Project, 2007.

Attachment 4: Teton River Crossing Area



Created by C. Jones 12/14/07

Legend

- Existing Western Area Power Administration 161kV transmission line
- Reroute 6
- Area for eventual relocation of the upgraded line
- Residences

2

0 1,000 2,000 4,000
Feet

Montana Department of Environmental Quality

L:\PCD\EMB\Data\MFSA\Havre-Rainbow\Field_2006\Attach4_TetonRiverXing.mxd
Source: Color Imagery, USDA 2005. Residences, Montana Cadastral Mapping Project, 2007.